

REMARKS

Claims 12-26 are pending. By this Amendment, claim 12 is amended.

Reconsideration based on the following remarks is respectfully requested.

I. The Double Patenting Rejection is Improper

The Office Action rejects claims 12, 14, 15 and 17 under the judicially created doctrine of obviousness-type double patenting over claims 1-6 of Aoki et al. (U.S. Patent No. 6,524,376). This rejection is respectfully traversed.

Before consideration can be given to the issue of double patenting, there must be some common relationship of inventorship and/or ownership of two or more patents or applications. See MPEP § 804. In this case, Aoki and the present application do not have at least one common inventor nor do they have a common assignee. Thus, the double patenting rejection is improper and should be withdrawn.

II. The Claims Define Patentable Subject Matter

A. The Rejection Under 35 U.S.C § 102(e)

The Office Action rejects claims 12-18 under 35 U.S.C. § 102(e) over Aoki et al. (U.S. Patent No. 6,524,376). This rejection is respectfully traversed.

As mentioned in the Amendment dated December 1, 2003, Aoki does not qualify as a reference under § 102(e) because the 102(e) date of Aoki is January 25, 2001, which is after the November 23, 2000 filing date of Korean patent application number 2000-70008 from which the present application claims priority. Accordingly, withdrawal of the rejection over Aoki is respectfully requested.

B. The Rejection Under 35 U.S.C § 103(a)

The Office Action also rejects claims 12, 16 and 18-26 under 35 U.S.C. § 103(a) over Kaufman et al. (U.S. Patent No. 6,063,306) in view of Chan et al. (U.S. Patent No. 6,495,200). This rejection is respectfully traversed.

Kaufman, alone or in combination with Chan, does not disclose or suggest a method of manufacturing a copper metal interconnection layer including, inter alia, exposing the barrier layer by chemical mechanical polishing (CMP) using a solution comprising an oxidizing agent, a pH controlling agent, a chelate reagent, and deionized water so that the copper seed layer remains only within the recessed region, wherein the step of exposing the barrier layer by CMP does not include the use of an abrasive, as recited in claim 12.


Instead, Kaufman discloses a CMP slurry that includes at least one abrasive. See, for example, column 11, lines 4-7 of Kaufman. Chan does not make up for the deficiencies of Kaufman. Chan discloses a method for depositing a seeding layer including steps of CMP polishing, but does not disclose or even suggest using a CMP slurry that does not contain an abrasive.

Both Kaufman and Chan disclose the conventional CMP process that uses a slurry including an abrasive. In the conventional CMP process, the abrasive remaining within a wafer after the polishing step can scratch the surface of the wafer. In contrast, using a CMP slurry without an abrasive removes or substantially eliminates contamination and/or scratching of the wafer.

For at least these reasons, it is respectfully submitted that claim 12 is patentable over the applied references. Dependent claims 13-26 are also patentable over the applied

references for the reasons discussed as well as for the additional features they recite. Applicants respectfully request that the rejections under 35 U.S.C. §§ 102 and 103 be withdrawn.

Respectfully submitted,



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